1 **SPRING WHEELS**
2 .With lubrication
3 ..Spring enclosure
4 ..Cylinder and piston
5 .Deformable ground engaging part
6 ..With plural spring types
7 ..With rubber spring
8 ..With pneumatic spring
9 ...Annular
10 ....With air tanks
11 ..With leaf spring
12 ...End secured
13 ..With coil spring
14 ...Radial
15 ....Cylinder and piston supported
16 ....Encircled rod supported
17 .Spring encircling rigid annulus
18 ..With nonresilient overload stop
19 ..Convertible to rigid wheel
20 ..With flexible annular support
21 ..Lateral thrust or tension
22 ...Combined spring and friction
23 ....Coil springs
24 .....Double thrust
25 ...With coil springs
26 ....Rod encircling
27 ...With balls
28 ..Combined spring and friction
29 ..With plural spring types
30 ...Rubber and pneumatic
31 ...Rubber and leaf
32 ...Rubber and coil
33 ....Annular rubber
34 ...Pneumatic and leaf
35 ...Pneumatic and coil
36 ....Annular pneumatic
37 ...Leaf and coil
38 ....Center secured leaf
39 ....End secured leaf
40 ..Rubber spring
41 ...In shear
42 ...Cylindrical
43 ....Transverse
44 ...Blocks or balls
45 ....With drive
46 .....With separate annulus guide
47 ...Annular
48 ....Rigid annulus enclosing
49 ....Plural
50 ....With separate annulus guide
51 .....Combined drive
52 ....With drive
53 ..Pneumatic spring
54 ...Link connected
55 ...Cylinder and piston
56 ...Annular
57 ....Rigid annulus enclosing
58 ....Plural
59 ....With separate annulus guide
60 .....Combined drive
61 ......Spring
62 ......Links
63 ......Radial
64 ......Studs or lugs
65 ......Through bolts
66 ......Anti-creep
67 ....With drive
68 .....Anti-creep
69 ..Leaf spring
70 ...With braces
71 ...Link connected
72 ...Variously arranged
73 ...Cylindrical units
74 ...Transverse
75 ...Straight, radial or tangential
76 ...Center secured
77 ....With separate annulus guide
78 .....Combined drive
79 ....Reversely curved
80 ...End secured
81 ....Single end
82 ....With separate annulus guide
83 .....Combined drive
84 ....Oppositely curved pairs
85 ....Reversely curved springs
86 ....Arcuate
87 ..Coil spring
88 ...Link connected
89 ...Variously arranged
90 ....Tangential and radial
91 ...Diagonal
92 ...Circumferential
93 ...Tangential
94 ...Transverse
95 ....Center secured
96 ....Concentric with wheel axis
97 ...Radial
98 ....Tandem, interposed bearing
99 ....Telescoping cylinder supported
100 ....Cylinder and piston supported
101 .....With separate drive
102 .....Double acting
103 ....Encircled rod supported

104 .....With independent annulus guide and drive
105 ....With separate annulus guide
106 .....Combined drive
107 ......Spring
108 ......Links
109 ......Radial
110 ......Studs or lugs
111 ......Through bolts
112 ....With separate drive
151 **TIRES, RESILIENT**
152 .Emergency
152.1 .With electrical conducting means
153 .With cooling devices
154 .With splash guards
154.1 .With balancing feature
154.2 .With wear indicating feature
155 .Cushion and pneumatic combined
156 ..Metallic spring cushion
157 ..Enclosed cushion
158 ...Internal buffers
159 ..Superimposed
160 ...Plungers
161 ...Edge-secured cushion
162 ...Guide flanges
163 ....Radial stops
164 .....Bolts or studs
165 ..Integral
166 ...With removable inner tube .Armored
167 ..Anti-skid
168 ...Radial filaments and laminations
169 ...Secured into casing
170 ...Detachable
171 ....Linked mat
172 .....Tire secured
173 ....With circumferential band
174 .....Bound to felly
175 .....Tire secured
176 ......Inlaid tread
177 ......With securing rings
178 ....Sectional
179 .....Tire secured
180 .....Wholly metallic
181 ......Bound to felly
182 ......Tire secured
183 ....Corner-connected sections
184 ....With securing rings
185 ..External
185.1 ...Track for single wheel
186 ...Bound to felly
187 ...Tire secured
188 ....Inlaid tread
189 ....With securing rings
190 ...Sectional
191 ....Tire secured
192 ..Single tube tires internal
193 ...Metal
194 ....Plates
195 ..Inner tube construction
196 ..Casing construction
197 ...Embedded
198 ....Metal
199 .....Plates
200 .....Annular
201 .....Linked mat
202 .....Woven
203 ..Interliners
204 ...Cotton, fabric, or rubber
205 ...Metal
206 ....Scale armor
207 ....Annular
208 .Anti-skid devices
209.1 ..Tread
209.2 ...For controlling noise by varying design cycle (e.g., specified pitch ratio, pitch sequence, etc.)
209.3 ....Having varying tread characteristic (e.g., groove depth, groove angle, etc.) other than design cycle
209.4 ...Containing randomly dispersed short fibers or anti-skid granules
209.5 ...Having tread sections (e.g., base-cap, etc.) containing different specified physio-chemical properties (e.g., hysteresis, modulus, hardness, etc.) or compositions
209.6 ....Including retread or precured tread section
209.7 ....Including foam section
209.8 ...Having asymmetric tread pattern
209.9 ....Characterized by different groove widths
209.11 ...For sidewall-running tires (e.g., unicycle, motorcycle, bicycle, etc.)
209.12 ...Containing lugs having or appearing to have net to gross ratios of less than 35 percent (e.g., farm equipment, tractor tire, etc.)

209.13 ....Having circumferential rib at or crossing equatorial plane
209.14 ...Having tire tread profile defined by diverse radii of curvature
209.15 ...Characterized by shape of upper surface of tread element (e.g., block with upper convex surface, etc.)
209.16 ...Having specified tread shoulder structure
209.17 ...Having isolated holes or suction cups
209.18 ...Having groove or sipe with specified dimension or structure therewithin
209.19 ....Protrusion from bottom and spaced from both walls (e.g., pebble ejector, etc.)
209.21 ....Protrusion from wall and spaced from the opposite wall
209.22 ....Protrusion bridging between walls (e.g., tie bar, etc.)
209.23 ....Both walls inclined in same direction
209.24 ....Having angle of inclination of one wall different from that of opposite wall
209.25 ....Having grooves or sipes with different specified depths
209.26 ....Having circumferential groove width at least per cent of tread width
209.27 ....Having continuous circumferential narrow width groove (i.e., less than 5mm.)
209.28 ...Having directional two dimensional pattern (e.g., "v" shaped, etc.)
210 ...With embedded anti-skid elements
211 ....Flush with tread
212 ....Radial filaments and laminations
213 R ..Applying and removing devices
214 ...Vehicle carried
215 ....Running board carried
216 ....Wheel carried
213 A ...Annular securing means
217 ..Tighteners
218 ...Radial
219 ...Circumferential
220 ..Plural tire
221 ..Flexible straps or cords
222 ...With metal anti-skid
223 ..Combined cross chains and plates or bars
224 ...Superimposed
225 R ..Plate or bar type
226 ...With traction lugs
227 ....Flanges
228 .....Integral
229 ....Calks
230 .....Integral
225 C ...Clamps
231 ..Cross chain type
232 ...Independent sections
233 ....Securing devices
234 .....Felly and spoke
235 ......Spoke clamped
236 .....Felly
237 ......Bound to felly
238 .....Spoke
239 ...Annular
240 ....With side anti-skid elements
241 ....Securing devices
242 .....Securing rings
243 ...Modified links
244 ....Solid
245 ....With protectors
246 .Cushion
247 ..Metallic springs
248 ...Tubular
249 ....Integral
250 ....Woven
251 ...Wheel encircling band
252 ....With supporting spring
253 .....Leaf
254 ......Circumferentially extending
255 ....Center secured
256 ....End secured
257 ....Single end
258 ......Transverse
259 ....Enclosed
260 ....Rim secured
261 .....Coil
262 ......Radial
263 ....Enclosed
264 ....Annular guide flange
265 ....Integral enclosure
266 ....Arcuate interior surface
267 ....Enclosed
268 .....Integral enclosure
269 ......Arcuate interior surface
270 ...Leaf
271 ....Circumferentially extending
272 .....Center secured
273 .....End secured
274 ......Single end

275 ....Transverse
276 .....Embedded
277 .....Enclosed
278 ......Rim secured
279 ....Retaining ring secured
280 .....Rim secured
281 ......Rim flange engagement
282 ......Radial securing means
283 ......Retaining ring secured
284 ...Coil
285 ....Circumferential
286 .....Embedded
287 .....Enclosed
288 ......Arcuate interior surface
289 ....Radial
290 .....Sectional tire units
291 ......With plungers
292 .....With plungers
293 .....Enclosed
294 ......Annular guide flange
295 ....Sectional tread
296 ......Integral enclosure
297 ....With nonmetallic band
298 ....Arcuate interior surface
299 ....With nonmetallic band
300 ..Sectional
301 ...Annular
302 ....Superimposed
303 ...Superimposed
304 ...With apertured external binders
305 ...Radial bolt secured
306 ...Abutting sections
307 ....With annular internal binders
308 ....Interfitting
309 ....Indented at joints
310 ..Casing enclosed core
311 ...Separate core
312 ....Removable
313 .....Sponge rubber
314 .....With core compression
315 .....Superimposed rings
316 .....Sectional transversely
317 ......Balls
318 .....Integral structure
319 ......Recessed
320 ....Chambered
321 ......Perforated
322 ......Chambered
323 ..Integral
324 ...With recesses
325 ....Chambered
326 ...With perforations
327 ...Chambered
328 ....Multiple
329 .....Annular
450 .Pneumatic tire or inner tube
451 ..Tire cord reinforcement materials per se
452 ..Cordless tires (e.g., cast tires)
453 ..Tire characterized by closed annular transverse cross section
454 ..Tire characterized by the dimension or profile of the cross sectional shape
455 ..Asymmetric tire
456 ...Asymmetry due to cross sectional profile
457 ..Tire foldable in storage or nonuse condition (e.g., collapsible space saving tire)
458 ..Tire reinforcement material characterized by short length fibers or the like
331.1 ..Multiple chamber
332.1 ...Cylinder and piston
333.1 ...Transverse walls
334.1 ....Mutually free walls
335.1 .....Interfitting
336.1 .....Balls
337.1 .....With simultaneous inflating means
338.1 ....With simultaneous inflating means
339.1 ...Annular chambers
340.1 ....Mutually free walls
341.1 .....With simultaneous inflating means
342.1 ....With simultaneous inflating means
343.1 ..Sectional casings
344.1 ...Circumferential
345.1 ....Rigid inner sections
500 ..With means restricting relative movemet between tire and inner tube (e.g., anti-creep feature)
501 ..With means to protect inner tube from rim
502 ..Automatic sealing of punctures (e.g., self-healing)
503 ...Using flowable coating or composition
504 ....On inner surface of tubeless tire
505 .....Sealant in plural layers or plural pockets

506 ....Within or part of construction of inflating inner tube
507 .....Sealant in plural layers or plural pockets
508 ...By compression
509 ...With reinflating means
510 ..Tire characterized by its air impervious liner or inner tube
511 ...Inner tube
512 ....With reinforcement element
513 ..With means to protect tire from rim
514 ..Means other than rim closing the tire opening
515 ...Positive casing closure
516 ..With means enabling restricted operation in damaged or deflated condition
517 ...With sidewall insert to facilitate load support in emergency
518 ...Utilizing additional inflatable supports which become load bearing in emergency
519 ....Inflated or expanded in emergency only
520 ...Utilizing additional noninflatable supports which become load supporting in emergency
521 ...Internal lubricating or cooling
522 ...Means facilitating folding between sidewall portions (e.g., run flat sidewalls)
523 ..Arrangement of grooves or ribs in sidewall
524 ..Having annular inlay or cover on sidewalls (e.g., white sidewalls)
525 ..Characterized by chemical composition or physical properties of external sidewall materials
526 ..Characterized by belt or breaker structure
527 ...Physical structure of reinforcing cords
528 ...Folded ply structure
529 ....Utilizing two or more cord materials
530 ...Consisting of only one ply
531 ...Utilizing at least one ply the cords of which run circumferentially (zero degree belt)
532 ...With cushioning or other special rubber ply layer
533 ...Reinforcing plies made up from wound narrow ribbons
534 ...Structure where each bias angle reinforcing cord ply has no opposingly angled ply
535 ...Structure made up of two or more sets of plies wherein the reinforcing cords in one set lie in a different angular position relative to those in other sets
536 ...Structure using multiple reinforcing elements made of differing materials
537 ...Breaker or belt characterized by the chemical composition or physical properties of elastomer or the like
538 ...Breaker or belt characterized by its dimensions or curvature relative to the carcass or any other part of the tire
539 ..Characterized by the structure of the bead portion of the tire
540 ...Structure of inextensible reinforcing member
541 ...Apex or filler strip
542 ...Flipper strips
543 ...Chafer or sealing strips
544 ...Bead contour for engagement with mounting rims (e.g., lips, ribs or grooves)
545 ...Multiple bead cores at each terminal edge or tire supporting surface
546 ...Bead characterized by the radial extent of apex, flipper or chafer into tire sidewall
547 ...Bead characterized by the chemical composition and or physical properties of elastomers or the like
548 ..Characterized by the carcass, carcass material, or physical arrangment of the carcass materials
549 ...Cushion means inward of outermost carcass ply

550 ...Carcass ply extends from at least one bead region without being folded about bead rings
551 ...Carcass ply only folded about one bead ring
552 ...Carcass ply turnup structure around bead rings
553 ....Folded from outside to inside of bead core
554 ....Characterized by the extent of the fold up into the sidewall of the tire relative to the other tire dimensions
555 ...Sidewall stiffening or reinforcing means other than main carcass plies or foldups thereof about beads
556 ...Physical structure of reinforcing cords
557 ...With two or more differing cord materials
558 ...Carcass characterized by the reinforcing cords of each carcass ply being arranged substantially parallel
559 ....Reinforcing cords run in opposite directions in successive carcass ply (i.e., bias plies)
560 ....Reinforcing cords of at least one carcass ply extend transversely across the tire from bead to bead (i.e., radial ply)
561 .....Combined with a bias angled ply
562 ...Cords curve from bead to bead in plural planes (e.g., s-shaped cord paths)
563 ...Reinforcing cord of a carcass ply arranged in a crossing relationship within the ply (e.g., woven, braided or knitted plies)
564 ...Carcass characterized by the chemical composition or physical properties of the elastomers or the like
565 ..Adhesion promoter: rubber to rubber or reinforcement to rubber
367 .Patches
368 ..Mechanically secured
369 ...Inside and outside, bolt connected
370 ..With plugs
371 ..Bandages
372 ...Mechanically secured
373 ....To felly or rim
375 .Wheel securing means
376 ..Plural tire
377 ..Retracting wheel section
378 R ..Integral rims
379.3 ...Interlocking tire and rim
379.4 ....With elongate bead guard
379.5 ....Bead and rim interlock
380 ....Tire embraced rim
381.3 ....Deep channel rim
381.4 .....With elongate circumferential bead guard
381.5 .....With channel cover
381.6 .....With channel filler
382 ....Clincher rim
383 .....Pneumatic tire
384 ...With anit-creep lugs
378 W ...Rim welded to disc
385 ..Axial
386 ..Radial
387 ...With circumferential tire incorporated clamps
388 ..With annular tire incorporated clamps
389 ...With mechanically joined ends
390 ....Adjustable
391 .....Pneumatic tire
392 ...Adjustable
393 ..Reinforced tire base structure
394 ...Metallic external base ring
395 ...With annular exterior clamps
396 ..Separable rim parts
397 ...Exterior clamps
398 ....Lateral acting
399 ...Interior clamps
400 ....Spreaders
401 .....Combined sectional channel
402 ...Sectional channel
403 ....Duplicate sections
404 .....Pneumatic tire
405 ....Pneumatic tire
406 .....Split side flange
407 ......End connected
408 ......With rim engaging end lugs
409 .....Locking rim secured
410 ......Split locking ring
411 .....Overlapping section
412 ......Bayonet or threaded joint
413 .....Bayonet or threaded joints
414 .....Hinged section
415 .Inflating devices
416 ..Vehicle body carried supply

417 ...Rotary joints
418 ..Wheel carried supply
419 ...With positive pump operating means
420 ....Gearing
421 ....Cam
422 .....Eccentric bearing
423 ....Obstacle
424 .....Ground
425 ......Casing interposed
426 ....Casing enclosed pump
427 ..Combined wheel and valve stem
428 ...With dust cap
429 ..Combined tire and valve stem
430 ...Reinforcements or patches
431 ..Combined valve stem cap and tool

DIG 1 **PEBBLE EJECTORS**
DIG 2 **STATIC DISCHARGE**
DIG 3 **SLITS IN TREADS**
DIG 4 **CRACK RESISTANT**
DIG 5 **WATER FILLED**
DIG 6 **PEG LEG**
DIG 7 **RUBBER VALVES**
DIG 8 **CLAMPS**
DIG 9 **BEAD TO RIM SEAL**
DIG 10 **SPLIT RIM SEAL**
DIG 11 **TUBELESS VALVES**
DIG 12 **WHITE SIDEWALLS**
DIG 13 **VALVES STEM GUARDS**
DIG 14 **FABRICS**
DIG 15 **OVERLAP**
DIG 16 **AIR IMPERMEABLE LINER**
DIG 17 **GROOVED RIM**
DIG 18 **HUB TIRES**
DIG 19 **SANDWICH BREAKERS**
DIG 20 **RIMS FOR INVERTED BEAD TIRES**

CROSS-REFERENCE ART COLLECTIONS

900 **TREAD PATTERN HAVING NO BLOCKS AND HAVING CIRCUMFERENTIAL RIBS DEFINED BY ZIG-ZAG CIRCUMFERENTIAL GROOVES**
901 **TREAD PATTERN HAVING NO BLOCKS AND HAVING CIRCUMFERENTIAL RIBS DEFINED BY LINEAR CIRCUMFERENTIAL GROOVES HAVING STRAIGHT EDGES**
902 **NON-DIRECTIONAL TREAD PATTERN HAVING NO CIRCUMFERENTIAL RIB AND HAVING BLOCKS DEFINED BY CIRCUMFERENTIAL GROOVES AND TRANSVERSE GROOVES**
903 **NON-DIRECTIONAL TREAD PATTERN HAVING NON-CIRCUMFERENTIAL TRANSVERSE GROOVE FOLLOWING SMOOTH CURVED PATH**
904 **SPECIFIED TREAD PATTERN FOR FRONT TIRE AND REAR TIRE**
905 **TREAD COMPOSITION**

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